

A REVIEW OF THE SHORE-FLY GENUS  
*POLYTRICHOPHORA* CRESSON FROM ASIA  
(DIPTERA: EPHYDRIDAE)

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*Abstract.*—Asian shore flies of the genus *Polytrichophora* Cresson are reviewed. Included are four previously described species (*P. brunneifrons* (Meijere), *P. canora* Cresson, *P. duplosetosa* (Becker), and *P. pollinosa* Miyagi). The tribe Discocerinini is characterized and a key to Asian discocerinine genera is provided; the monophyly of *Polytrichophora* is established, and a key to species occurring in the Palearctic and Oriental regions is presented, including *P. orbitalis* (Loew), which was reported to occur in north Africa (we have not seen specimens of this species from the Old World, however, and doubt its occurrence there). *Polytrichophora luteicornis* Cresson is determined to be a junior synonym of *P. canora* Cresson. All Asian species treated are redescribed, and characters of the male genitalia are illustrated.

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This is the second paper of a series on the Ephydridae or shore flies of Asia with emphasis on species that occur in China. The first paper was on the genus *Lamproscatella* Hendel (Mathis & Zuyin 1988).

The purposes of this paper are twofold: First, we present an overview of the tribe Discocerinini, including a key to genera that are found or are reported to occur in Asia. Second, we review the genus *Polytrichophora* Cresson, one of the genera of Discocerinini, from the same geographic area. As part of the latter study, we have examined all primary types of species that have been reported to occur in Asia, and for each species, illustrations of the male genitalia are provided. With the exceptions to be noted below, these are the first illustrations of these species.

Previous papers on Asian species of *Polytrichophora* are mostly of limited scope, usually isolated descriptions as part of faunistic reviews. No comprehensive treatment exists for the Asian species, although Cresson (1945) did provide a list of species occurring in the Indoaustralian region. That list included a complete synonymy, and for

some species, brief remarks, alluding to the generic placement of the species or a nomenclatural issue. More recently, Miyagi (1977) treated the Japanese fauna, which included two species of *Polytrichophora*, and the figures he produced were the first available for these taxa. Two other important works are the fairly recent catalogs of the Oriental (Cogan & Wirth 1977) and the Palearctic (Cogan 1984) components of the Asian fauna. The catalogs provide a listing of species, primary references, and an outline of their distributions.

In this paper, we adhere generally to the methods and descriptive terminology that were used in the first paper of this series (Mathis & Jin 1988). For each species treated in this study, we have noted, as appropriate, its descriptive and nomenclatural history as part of the synonymy. Specimens for this study came primarily from the collections of the Academy of Natural Sciences of Philadelphia (ANSP), the Smithsonian Institution (USNM), Washington, D.C., and the Northwestern Teachers College (NTC), Lanzhou, Gansu Province, China. Sexes are similar, so descriptions are based on both

sexes except for male genitalia. The terminology we have used for structures of the genitalia is as indicated on Figs. 6–9. Five cephalic and two venational ratios are used commonly in the descriptions; these are defined here for the convenience of the user.

Head ratio: Head height/head width. Both measurements are the greatest dimensions of the head from an anterior view.

Frontal ratio: Frons height/frons width. The width measurement is the straight line distance between the median margins of the compound eyes at the level of the anterior ocellus; the height measurement is the distance from the anterior margin of the frons to a “line” through the posterior ocelli.

Facial ratio: Face height/face width. The height measurement is the distance between the oral margin and the dorsum of the frontal suture; the width measurement is the narrowest distance between the compound eye across the face.

Eye ratio: Eye height/eye width. Both measurements are the greatest dimensions as taken from a lateral view.

Eye-to-cheek ratio: genal height/eye height. Both measurements are the greatest dimensions as taken from the head in lateral view.

Costal vein ratio: The straight line distance between the apices of  $R_{2+3}$  and  $R_{4+5}$ /distance between the apices of  $R_1$  and  $R_{2+3}$ .

M vein ratio: The straight line distance along vein M between crossveins (dm-cu and r-m)/distance apicad of dm-cu.

Tribe Discocerinini

*Diagnosis.*—Small to moderately small shore flies, length 1.25 to 3.5 mm; usually invested with considerable microtomentum, especially frons and mesonotum.

Head: Ocellar setae inserted anterior to level of anterior ocellus, sometimes only slightly so; reclinate fronto-orbital seta inserted anterior to proclinate fronto-orbital (if two proclinate fronto-orbitals present, inserted in front of the larger one); postocellar setae well developed, proclinate, and

slightly divergent, usually at least one-half length of ocellar setae; arista with from five to seven dorsally branching rays; face not conspicuously pitted or rugose; gena, including midportion, bearing setulae, its posterior (postgenal) margin rounded.

Thorax: Mesonotum generally microtomentose, usually densely so, although with some variation; supra-alar seta usually evident although sometimes reduced; acrostichal setae arranged in about 8 irregular rows; prescutellar acrostichal setae approximate and inserted behind level of posteriormost dorsocentral setae; scutellum usually densely setulose; both anterior and posterior notopleural setae inserted at about the same level.

Abdomen: Male genitalia: surstyli not evident, apparently lost or fused indistinguishably with the ventral margin of the epandrium.

Key to Asian Genera of the  
Tribe Discocerinini

1. Notopleuron with scattered setulae in addition to two larger setae . . . . . 2
- Notopleuron setulae absent, with only the two larger setae . . . . . 3
2. Facial setae arranged in two dorsoventral series, secondary series of dorsolaterocline setae laterad of inclinate primary series; eye densely invested with microscopic setulae . . . . . *Polytrichophora* Cresson
- Facial setae arranged in one series; eye at most with sparse, scattered microscopic setulae . . . . . *Discocerina* Macquart
3. Supra-alar seta well developed, longer than posterior notopleural seta; face with an upcurved seta at lower lateral extremity . . . . . *Diclasiope* Hendel
- Supra-alar seta weak or absent, if present, distinctly shorter than posterior notopleural seta; face lacking upcurved seta at lower lateral extremity . . . . . 4



4. Hind tibia bearing spurlike, preapical seta ventrally; facial series comprised of from two to three large setae; dorsal seta inserted slightly medially and arising from distinct, shining papilla, with a small, slightly anaclinate seta laterad of dorsal seta; generally microtomentose, cinereous species, appearing dull . . . . .  
 . . . . . *Hecamedoides* Hendel
- Hind tibia lacking spurlike, preapical seta; facial series comprised of two large setae, dorsal seta not arising from a shining papilla and lacking a smaller seta laterad of dorsal seta; mostly sparsely microtomentose, shining to subshining species . . . . .  
 . . . . . *Ditrichophora* Cresson

*Polytrichophora* Cresson

*Polytrichophora* Cresson, 1924:161. Type species: *Polytrichophora agens* Cresson, 1924:161, orig. des.—Cogan and Wirth, 1977:327–238 [Oriental catalog].—Cogan, 1984:137–138 [Palearctic catalog].

*Diagnosis.*—Small to moderately small shore flies, length 1.25–3.0 mm; generally densely microtomentose, grayish species.

Head: Eye conspicuously microsetulose; facial setae usually comprising eight setae, these generally decreasing in size from top to bottom, appearing as two series due to divergent orientation of setae in series; setae of primary series inclinate (setae 1, 2, 5, and 7), generally larger than setae of secondary series except for seta 2, which is much reduced and inserted laterad and sometimes slightly ventrad of seta 1, seta 1 largest of all facials, inclinate (cruciate with opposite seta), but not arising from shining papilla; setae of secondary series oriented dorsolaterally to laterally (setae 3, 4, 6, and 8), usually smaller than setae of primary series; face lacking a distinctly anaclinate seta at ventral extremity; parafacial narrow to moderately wide, with or without setulae; gena generally low.

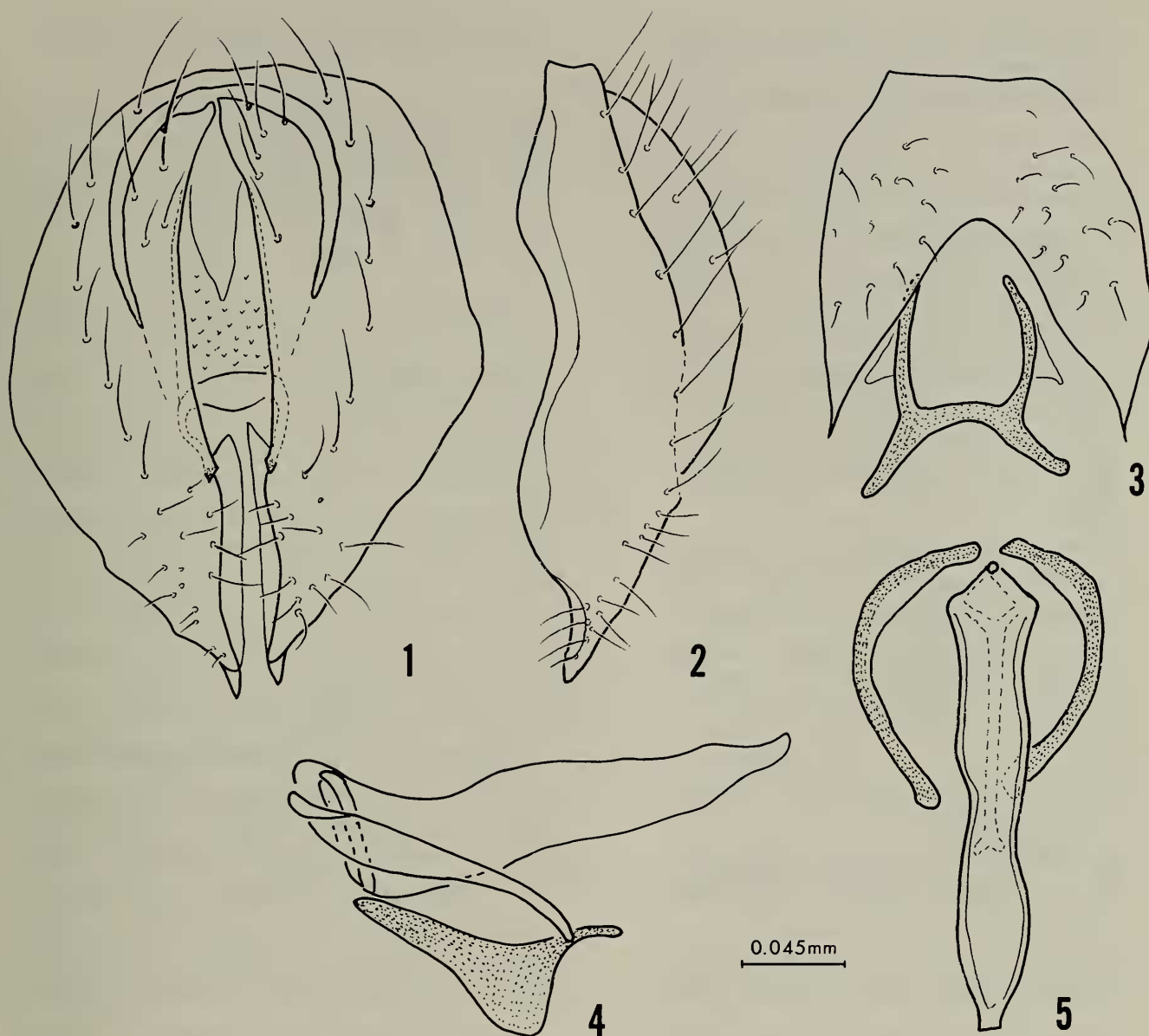
Thorax: Notopleuron bearing numerous setulae in addition to two larger setae; anterior notopleural seta inserted conspicuously closer to posterior notopleural seta than to postpronotal seta; supra-alar seta reduced, about one-half length of postalar seta.

Abdomen: Fourth tergum of male only slightly longer than third. Male genitalia with cerci fused ventrolaterally to median margin of epandrium.

*Distribution.*—This is one of the few genera of Ephydridae that occurs worldwide, and with approximately the same species diversity in each region, whether temperate or tropical. A dozen new species have been segregated from the neotropics (Mathis, in preparation), however, which, would make that region by far the richest in species.

*Natural history.*—Specimens of *Polytrichophora* are usually associated with mud-shore and sand-shore habitats (Deonier 1965) or rarely with a marsh-reed habitat (Scheiring & Foote 1973). We usually found the greatest diversity and abundance when collecting on mud and sandy shores that had a matlike covering of algae.

*Discussion.*—*Polytrichophora*, along with *Discocerina* and *Hydrochasma* Hendel (New World), form a monophyletic lineage within the Discocerini. An apomorphy to substantiate the monophyly of this group is the setulose notopleuron. In other genera of the subfamily Psilopinae, the notopleuron is bare except for an anterior and a posterior seta, both of which are inserted near the ventral margin. In *Polytrichophora*, *Hydrochasma*, and *Discocerina*, however, the notopleuron bears a few additional setulae that are usually inserted slightly dorsad and toward the anterior portion of the pleuron, usually around the anterior notopleural seta. *Polytrichophora* may be distinguished from *Discocerina* or *Hydrochasma* by the secondary “series” of facial setae (see generic description), a character that is unique to this genus and establishes its monophyly. Its relationship to *Discocerina* and *Hydro-*



Figs. 1–5. *Polytrichophora orbitalis*. 1. Epandrium and cerci, posterior view. 2. Epandrium and left cercus, lateral view. 3. Fifth sternum and hypandrium, ventral view. 4. Aedeagal apodeme and aedeagus, lateral view. 5. Aedeagus, dorsal view.

*chasma* is not resolved, however; either or both of these genera could be paraphyletic and include *Polytrichophora* as a sublineage.

In the following key, we have included all species that are reported to occur in the Palearctic and Oriental Regions. One species, *P. orbitalis* (Loew), which was described from specimens collected in North America, was reported to occur in North Africa (Cogan 1984). We have not confirmed this, having studied no specimens that are conspecific with *P. orbitalis* from North Africa. In the event that this species

does occur there, we have included it in the key and have also provided figures of the male genitalia (Figs. 1–5) based on specimens from North America.

#### Key to Palearctic and Oriental Species of *Polytrichophora*

1. Mesonotum mostly brown, but brown coloration extended laterally only to level of posterior dorsocentral setae, thereafter with gray-colored microtomentum in a broad lat-

- eral stripe; membranous aedeagal flap closely appressed to aedeagus; ventral margin of epandrium short and broad in lateral view (Europe and Asia) . . . . . *P. duplosetosa* (Becker)
- Mesonotum more extensively brown colored, brown coloration extended laterally to level of supra-alar setae, gray-colored areas restricted to extreme lateral and anterior margins; membranous aedeagal flap, if present, separated from aedeagus except at base; ventral margin of epandrium long and narrow in lateral view . . . . . 2
2. Face narrow, facial ratio averaging 0.75; fore femur with ventral flexor setulae longer than width of fore tibia at midlength; aedeagus lacking membranous flap at apex (North America, ? North Africa) (Figs. 1–5) . . . . . *P. orbitalis* (Loew)
- Face narrow, facial ratio averaging less than 0.60; fore femur with ventral flexor setulae shorter than width of fore tibia at midlength; aedeagus with apical, membranous flap . . . . . 3
3. Fore coxa extensively invested with whitish gray to gray microtomentum, yellowish coloration faint; fore femur with a posteroventral row of 6–7 spine-like setae (Japan) . . . . .  
. . . . . *P. pollinosa* Miyagi
- Fore coxa mostly yellow; fore femur with a posteroventral row of only 4–5 spine-like setulae . . . . . 4
4. Length of ventral process of epandrium short, equal to one-fifth width of epandrium; aedeagus 3.5 × as long as wide; aedeagal apodeme subtriangular . . . *P. brunneifrons* (Meijere)
- Length of ventral process of epandrium long, narrow, digitiform, equal to ½ width of epandrium; aedeagus 5 × as long as wide; aedeagal apodeme subrectangular . . . . .  
. . . . . *P. canora* Cresson

*Polytrichophora brunneifrons* (Meijere)

Figs. 6–10

*Discocerina brunneifrons* Meijere, 1916:270.  
*Polytrichophora brunneifrons*. — Cogan & Wirth, 1977:327–328 [generic placement; Oriental catalog]. — Cogan 1984:137 [Palearctic catalog].

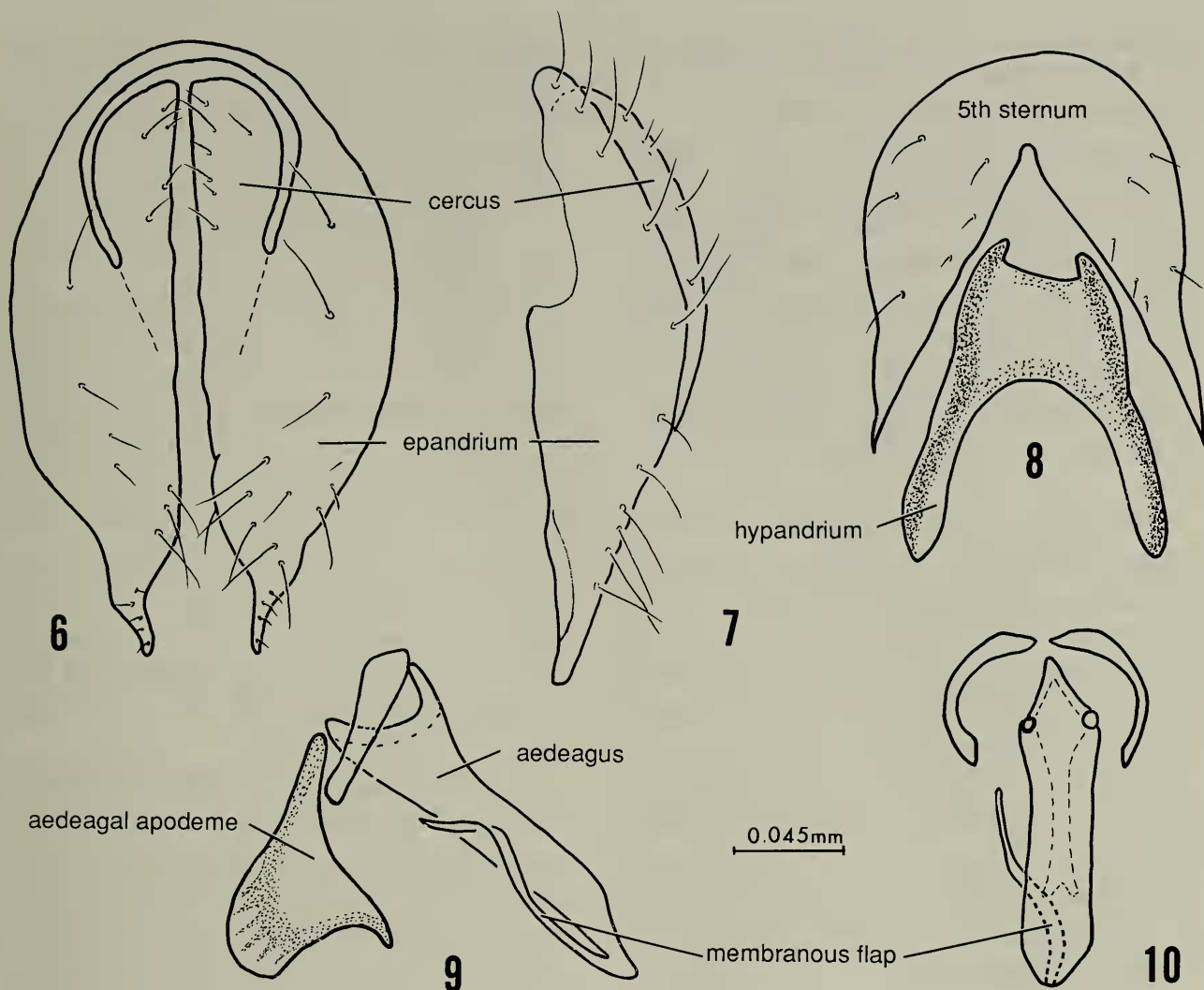
*Description*. — Small shore flies, length 1.25 to 1.75 mm (holotype 1.72 mm).

*Head*: Head ratio averaging 0.85. Frons rectangular, frontal ratio averaging 0.70, generally microtomentose, microtomentum tan; ocellar triangle more densely microtomentose than remainder of frons; parafrons black, slightly orangish red along anterior margin; anterior fronto-orbital plate with very narrow white band immediately adjacent to eye; ocellar setae inserted slightly in front of anterior ocellus. Antennae mostly orange, but dorsal surface of pedicel and 1st flagellomere partially blackish; arista with 5 dorsally branching rays. Face densely invested with grayish to slightly bluish white microtomentum; parafacial setulae hair-like; parafacials lightly yellowish but becoming whitish; gena white and densely microtomentose. Eye ratio averaging 0.70; eye-to-cheek ratio averaging 0.11. Palpus yellow.

*Thorax*: Mesonotum densely microtomentose, mostly light brown but postpronotum, notopleuron, pleural sclerites whitish to silvery gray. Fore coxa yellow; femora yellow, invested with grayish microtomentum except for base and apex; tibiae and tarsi yellowish, apical tarsomere usually slightly darker, brownish; fore femur with a posteroventral row of 4 stout but acutely pointed setae. Wing hyaline; costal vein ratio averaging 0.80; M vein ratio averaging 0.52. Halter yellowish.

*Abdomen*: Dorsum generally unicolorous, brown, darker than coloration of mesonotum and very slightly shining. Length of 5th tergum of male nearly 1.5 × that of 4th; 5th sternum (Fig. 8) with anterior margin rounded, lateral arms connected broadly at





Figs. 6–10. *Polytrichophora brunneifrons*. 6. Epandrium and cerci, posterior view. 7. Epandrium and left cercus, lateral view. 8. Fifth sternum and hypandrium, ventral view. 9. Aedeagal apodeme and aedeagus, lateral view. 10. Aedeagus, dorsal view.

base, base not interrupted medially. Male genitalia (Figs. 6–10) as follows: Epandrium (Figs. 6–7) more or less elliptical in posterior view, dorsal margin rounded, ventral margin reduced as 2 short, sinuate (in posterior view), pointed processes, the length of which is slightly less than greatest width of a cercus in posterior view; aedeagus (Figs. 9–10) about 5 × as long as width at middle, broader basally and with distinct taper at base and apex, apex pointed and bearing a narrow, membranous flap that generally folds back under aedeagus, flap about  $\frac{2}{3}$  length of aedeagus; aedeagal apodeme somewhat triangular, dorsal process short; posterior arms

of hypandrium (Fig. 8) widely separated and nearly  $\frac{2}{3}$  total length of hypandrium, anterior margin with shallow but wide emargination.

*Type material.*—The holotype female of *Discocerina brunneifrons* is labeled “K. Jacobson Wonosobo Java [Indonesia] Mei 1909/9 29/927–929 op modderig grindbanken langs stroomen[?] water. [handwritten and barely legible, = on mud and gravel banks along flowing water]/Clasiopa brunneifrons det. de Meijere. Type [black submargin; species name and “type” handwritten]/HOLOTYPE [red with black border]/HOLOTYPE ♀ *Discocerina brunneifrons* de

M[eijere]. det. B. H. Cogan 1971 [all but "det. B. H. Cogan 197" handwritten]/*Polytrichophora brunneifrons* meij[ere] det. B. H. Cogan 1973 [all but "det. B. H. Cogan 197" handwritten]/*Polytrichophora brunneifrons* (Meij[ere].) WWirth 74 [black submargin; all but "WWirth" handwritten]." The holotype is double mounted (minute nadel in rectangular block of foam plastic), is in good condition, and is deposited in the Instituut voor Taxonomische Zoölogie, Universiteit van Amsterdam, The Netherlands.

*Distribution.*—Oriental: India (Assam), Malaysia (Selangor), Pakistan (Dharmyal), and Thailand (Bangkok, Chiangmai, Choburi, Khon Kaen, Udon Thani). Several other records listed in Cogan and Wirth (1977), mostly from countries not listed above, have not been confirmed.

*Remarks.*—The description above is based primarily on the holotype of *P. brunneifrons*, which is a female. The illustrations of the male genitalia are from a specimen that was collected in Thailand (Khon Kaen Province, Meung District).

*Polytrichophora canora* Cresson,  
revised status  
Figs. 11–15

*Polytrichophora canora* Cresson, 1929:165; 1945:62 [review of Indoaustralian species].—Cogan & Wirth, 1977:328 [Oriental catalog; as a synonym of *P. brunneifrons*].

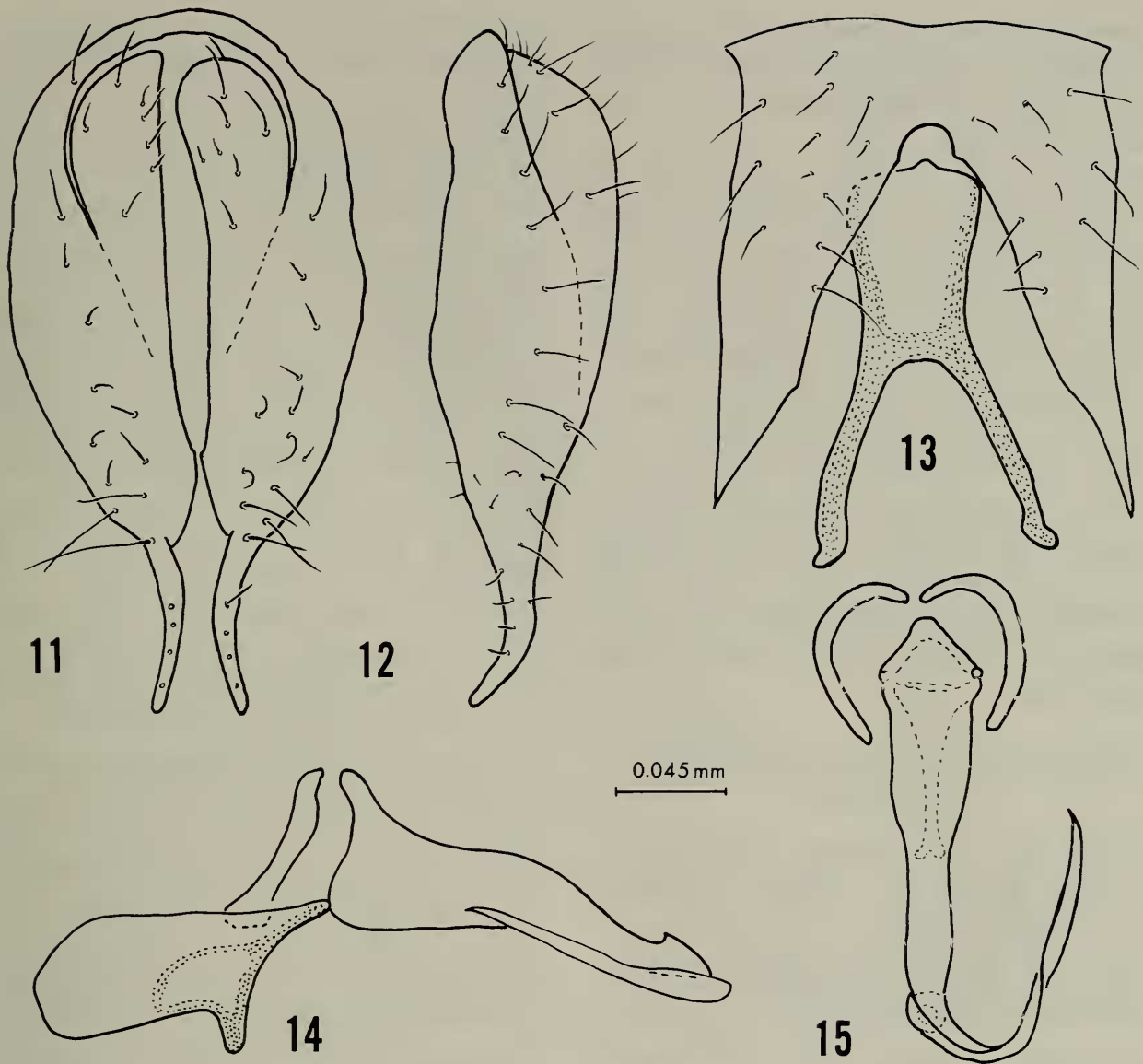
*Polytrichophora luteicornis* Cresson, 1929:166; 1945:62 [review of Indoaustralian species]—Miyagi, 1977:20 [review, Japan].—Cogan & Wirth, 1977:328 [Oriental catalog; as a synonym of *P. brunneifrons*]. New Synonym

*Description.*—Small shore flies, length of males averaging 1.15 mm (1.0–1.30 mm), females averaging 1.35 mm (1.15–1.55 mm); body mostly bronze colored but with some whitish gray microtomentum laterally; fore femur with 4–5 short, stout setae along apical half of posteroventral surface.

Head: Head ratio averaging 0.84. Frons rectangular, frontal ratio averaging 0.71 (males) or 0.73 (females), subshining with a sparse whitish gray microtomentum; parafrons black, partially golden to yellowish or slightly greenish dorsally; mesofrons, fronto-orbital plate, and ocellar triangle golden brown, sometimes slightly greenish; ocellar setae inserted slightly in front of or aligned immediately laterad of anterior ocellus. Antennae mostly yellow, dorsal surface of pedicel and 1st flagellomere black; arista with five dorsally branching rays. Face bearing three pairs of primary and four pairs of secondary facial setae; parafacial setulae hair-like; parafacials and gena ochraceous, with silvery microtomentum, microtomentum becoming denser on gena. Eye ratio averaging 0.74; eye-to-cheek ratio averaging 0.097. Palpus yellow.

Thorax: Mesonotum mostly bronze colored, but with whitish gray microtomentum anteriorly and laterally; pleura brown, with densely whitish gray microtomentum. Fore coxa yellow, brownish basally; femora brown except base of fore femur yellow; tibiae mostly yellow but brownish in median part; tarsomeres 1–4 yellow, 5th brownish; fore femur with 4–5 short, stout, black setae along apical half of posteroventral surface. Wing hyaline; costal vein ratio averaging 0.84; M vein ratio averaging 0.50. Halter yellowish.

Abdomen: Dorsum generally concolorous with mesonotum but with whitish gray microtomentum laterally and posteriorly. Length of 5th tergum of male nearly 1.5× that of 4th; 5th sternum (Fig. 13) with anterior margin truncate. Male genitalia (Figs. 11–15) as follows: Epandrium (Figs. 11–12) in posterior view oval except for ventral processes; dorsal margin of epandrium rounded; ventral process of epandrium elongate, length greater than width of cercus, parallel sided; aedeagus (Figs. 14–15) 5× longer than wide, broader basally, tapered irregularly to apex; aedeagal flap extended laterally from apex, length about two-thirds that of aedeagus; aedeagal apodeme



Figs. 11–15. *Polytrichophora canora*. 11. Epandrium and cerci, posterior view. 12. Epandrium and left cercus, lateral view. 13. Fifth sternum and hypandrium, ventral view. 14. Aedeagal apodeme and aedeagus, lateral view. 15. Aedeagus, dorsal view.

(Fig. 14) subrectangular, dorsal process short; posterior arms of hypandrium (Fig. 13) about one-half total hypandrial length, anterior margin mucronate.

*Type material.*—The holotype female of *Polytrichophora canora* is labeled “Tainan[,] 909.II./Formosa Sauter/1115/TYPE No. 6330[,] *Polytrichophora Canora* ♀ E. T. Cresson, Jr, [pink; number and species name handwritten].” The holotype is double mounted (minute nadel in rectangular foam block), is in good condition, and is deposited in the ANSP (6330).

The holotype female of *Polytrichophora luteicornis* is labeled “Singapore[,] Biró[,] 1898/♂ [sic]/Property of Hung [handwrit-

ten] Loaned [pink]/Type No. *Polytrichophora luteicornis* E. T. Cresson, Jr, [dark pink; species name handwritten].” The holotype is double mounted (minute nadel in rectangular form block), is in poor condition (pin obscures several structures), and is presently deposited in the ANSP.

*Distribution.*—Oceania: Belau (Pelau); Federated States of Micronesia (Yap Islands, Caroline Islands); Solomon Islands (Rondova). Palearctic: China (Guang Xi); Japan (Honshu, Ryukyu Islands, Iriomotejima, Okinawa). Oriental: Malaysia (Sarawak, Selangor, Singapore); Taiwan (Tainan); Thailand (Bangkok).

*Remarks.*—This species is similar to *P.*



*brunneifrons*, but the genitalia of the male, especially the long, slender processes at the ventral margin of the epandrium, are consistently different.

We could not identify the holotype of either the senior or junior synonym with complete assurance and have primarily based our assignment of names to this species on its distribution. The holotype of *P. canora* was collected on Taiwan; that of *P. luteicornis* in Malaysia. We have examined male specimens from Malaysia, and Taiwan is near the center of the known distribution of this species. This also follows the precedent of Miyagi (1977), although he used the junior synonym as the name for the Japanese specimens he studied. The male specimen we illustrated is from China (Guang Xi).

*Polytrichophora duplosetosa* (Becker)

Figs. 16–20

*Clasiopa duplosetosa* Becker, 1896:162.

*DiClasiopa duplosetosa*. — Becker, 1926:45.

*Polytrichophora duplosetosa*. — Cresson, 1929:166 [generic placement]. — Cogan, 1984:137 [Palearctic catalog].

*Description*. — Small shore flies, length 1.30 to 1.85 mm.

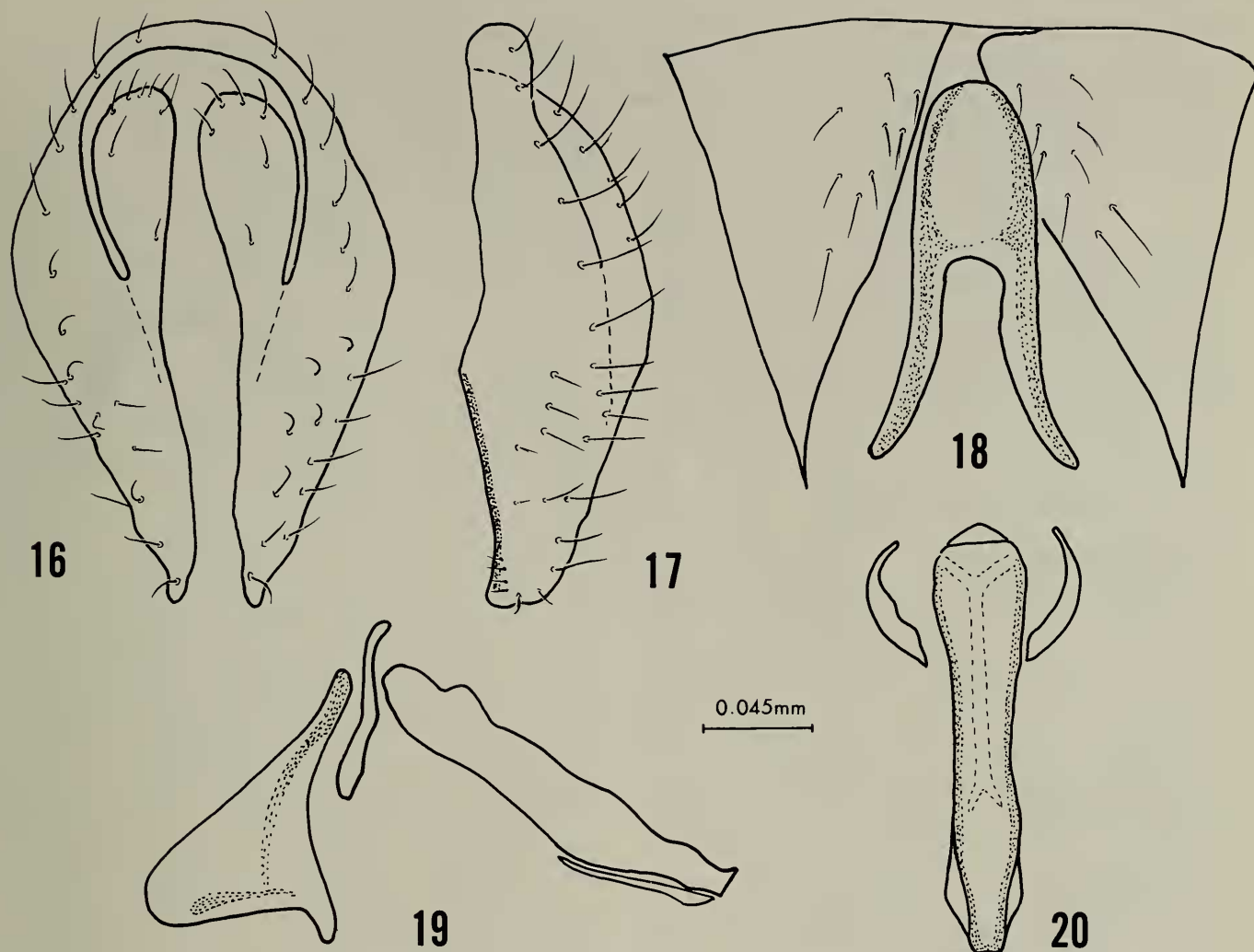
*Head*: Head ratio averaging 0.80. Frons rectangular, frontal ratio averaging 0.68, generally brown microtomentose; ocellar triangle more densely microtomentose than remainder of frons, usually bearing from two to four setulae near anterior margin; parafrons black, slightly orange red along anterior margin; anterior fronto-orbital plate with narrow band of sparsely white microtomentum immediately adjacent to eye; ocellar setae inserted slightly in front of anterior ocellus. Antennae mostly orange, but dorsal surface of pedicel and 1st flagellomere partially blackish; arista with 5 dorsally branching rays. Face densely invested with grayish to yellowish gray microtomentum; parafacial setulae hair-like; parafacials lightly yellowish, concolorous with face but becoming whitish; gena white and densely

microtomentose. Eye ratio averaging 0.67; eye-to-cheek ratio averaging 0.12. Palpus yellow.

*Thorax*: Mesonotum distinctly two toned, with broad longitudinal brown vittae extended laterally to level of posterior dorsocentral seta, thereafter lateral margin gray; pleural areas mostly gray to whitish gray, becoming lighter colored, more whitish, ventrally. Fore coxa mostly yellow, at most very lightly brownish basally but extensively invested with silvery gray microtomentum; femora brownish gray to gray; fore and mid tibiae mostly gray, hind tibia mostly yellow; tarsomeres 1–4 yellow, 5th, occasionally 4th, brownish; fore femur with four short, stout, black setae along apical half of posteroventral surface. Wing hyaline; costal vein ratio averaging 0.86; M vein ratio averaging 0.51. Halter yellowish.

*Abdomen*: Dorsum generally concolorous with mesonotum but with whitish gray microtomentum laterally and posteriorly; posterior margin of 5th tergum of male with some gray microtomentum. Length of 5th tergum of male nearly  $1.5 \times$  that of 4th; 5th sternum (Fig. 18) with anterior margin nearly straight and with posterior cleft extended to anterior margin, forming two triangular sternites. Male genitalia (Figs. 16–20) as follows: Epandrium (Figs. 16–17) more or less elliptical in posterior view, dorsal margin rounded, ventral margin pointed in posterior view but lacking a process, ventral margin blunt in lateral view; aedeagus (Figs. 19–20) about  $5 \times$  as long as wide, an irregularly shaped tube, membranous flap weakly developed, closely appressed to ventral surface, about 0.4 length of aedeagus; aedeagal apodeme (Fig. 19) subtriangular; posterior arms of hypandrium (Fig. 18) moderately close together and comparatively short, slightly more than one-half total length, anterior margin rounded.

*Type material*. — The lectotype male of *Clasiopa duplosetosa*, designated here, is labeled "Oderwald [Poland. Silesia] 19/5. 37059 [handwritten]/lecto Typus Mathis 1984 [red; "lecto," "Mathis," "1984" hand-



Figs. 16–20. *Polytrichophora duplosetosa*. 16. Epandrium and cerci, posterior view. 17. Epandrium and left cercus, lateral view. 18. Fifth sternum and hypandrium, ventral view. 19. Aedeagal apodeme and aedeagus, lateral view. 20. Aedeagus, dorsal view.

written]. There are three other specimens labeled “Typus” from Oderwald; these are designated as paralectotypes. A fourth paralectotype is labeled “duplosetosa Beck. [handwritten]/Orsova V.37681. [number handwritten; black submargins]/Typus [red].” The lectotype male is double mounted (minute nadel in rectangular block of pith), is in good condition, and is in the Humboldt Universität.

*Distribution.*—Widespread in Europe and extending into Asia as far east as Iran (Cogan 1984).

*Remarks.*—Except for records of *P. orbitalis* in North Africa, specimens of which we have not studied, this is the only species of *Polytrichophora* in the western Palearctic Region.

There is considerable variation in the coloration of the face and parafacials in this species. The color varies from a silvery cream to a rusty gold. Moreover, the parafacials are not always concolorous with the face, although they usually are.

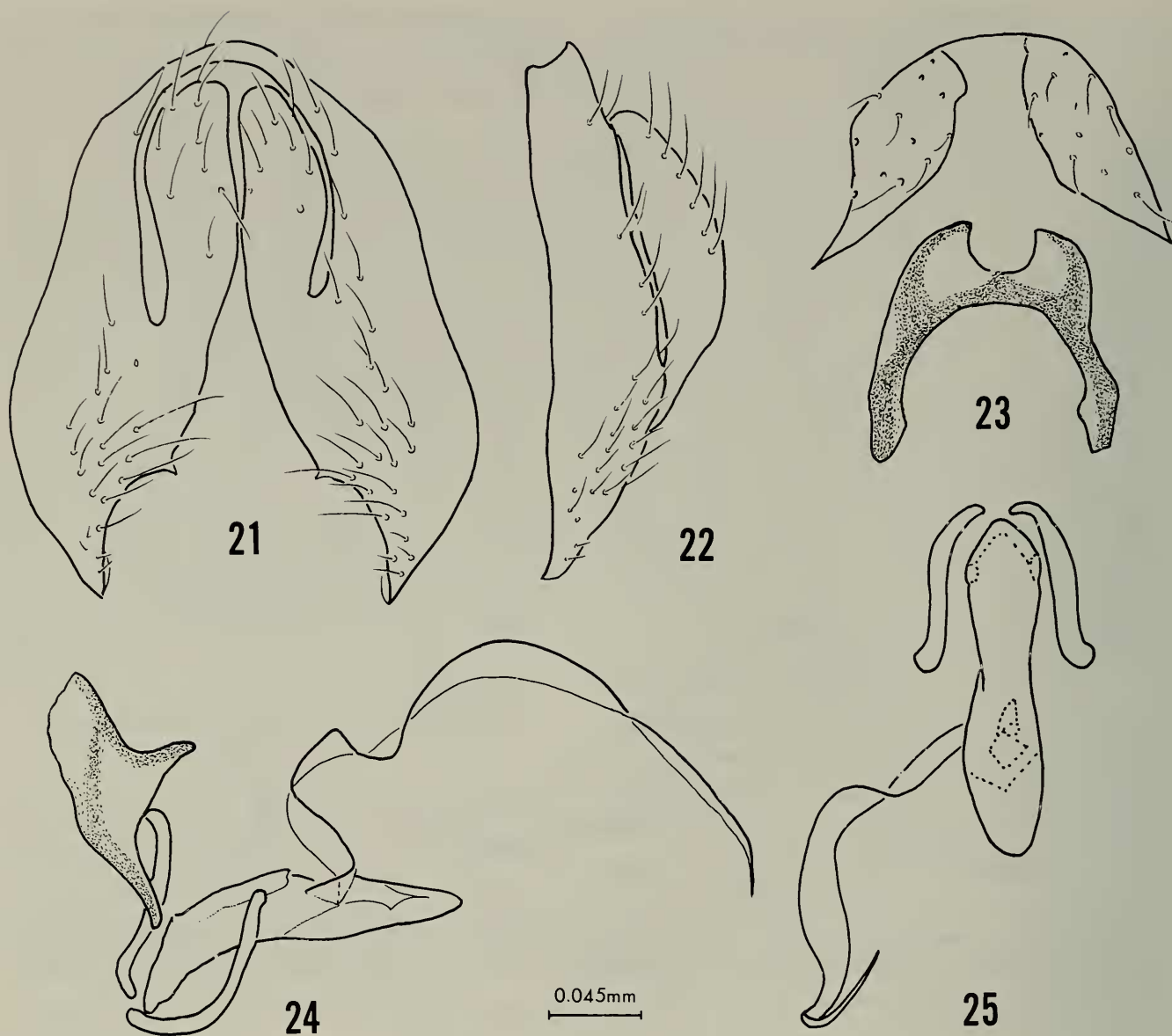
*Polytrichophora pollinosa* Miyagi

Figs. 21–25

*Polytrichophora pollinosa* Miyagi, 1977: 20.—Cogan, 1984:138 [Palearctic catalog].

*Description.*—Small shore flies, length 1.83 mm (holotype, the only specimen with an intact abdomen).

Head: Head ratio averaging 0.84. Frons rectangular, frontal ratio averaging 0.66,



Figs. 21–25. *Polytrichophora pollinosa*. 21. Epandrium and cerci, posterior view. 22. Epandrium and left cercus, lateral view. 23. Fifth sternum and hypandrium, ventral view. 24. Aedeagal apodeme and aedeagus, lateral view. 25. Aedeagus, dorsal view.

generally brown microtomentose; ocellar triangle more densely microtomentose than remainder of frons, usually bearing from two to four setulae near anterior margin; parafrons black, slightly orangish red along anterior margin; anterior fronto-orbital plate with narrow band of sparsely white microtomentum immediately adjacent to eye; ocellar setae inserted slightly in front of anterior ocellus. Antennae mostly orange, but dorsal surface of pedicel and 1st flagellomere partially blackish; arista with 5 dorsally branching rays. Face densely invested with grayish to yellowish gray microtomen-

tum; parafacial setulae hair-like; parafacials lightly yellowish, concolorous with face but becoming whitish; gena white and densely microtomentose. Eye ratio averaging 0.65; eye-to-cheek ratio averaging 0.17. Palpus yellow.

Thorax: Mesonotum densely microtomentose, mostly brown but postpronotum and notopleuron silvery gray to gray; pleural sclerites whitish to silvery gray, becoming more light colored ventrally. Fore coxa mostly yellow, at most very lightly brownish basally, but extensively invested with silvery gray microtomentum; femora



brownish gray to gray; fore and mid tibiae mostly gray, hind tibia mostly with more yellow exposed on base and apex; tarso-meres 1–4 yellow, 5th, occasionally 4th, brownish; fore femur with 4 short, stout, black setae along apical half of posteroventral surface. Wing hyaline; costal vein ratio averaging 0.87; M vein ratio averaging 0.56. Halter yellowish.

Abdomen: Dorsum generally concolorous with mesonotum but with whitish gray microtomentum laterally and posteriorly; posterior margin of 5th tergum of male with some gray microtomentum. Length of 5th tergum of male nearly  $1.5\times$  that of 4th; 5th sternum (Fig. 23) divided into 2 diamond shaped sternites. Male genitalia (Figs. 21–25) as follows: Dorsal margin of epandrium (Fig. 21) rounded in posterior view, pointed ventrally in lateral and posterior views (Figs. 21–22), median margin about one-third distance from ventral margin, with small pointed spur in posterior view; aedeagus (Figs. 24–25) between  $4\text{--}5\times$  longer than wide, basal one-half parallel sided, apical one-half evenly tapered to apex; aedeagal flap attached subapically, elongate, about twice length of aedeagus; aedeagal apodeme (Fig. 24) subtriangular; posterior arms of hypandrium (Fig. 23) widely separated and over two-thirds total length of hypandrium, anterior margin with a distinct U-shaped emargination.

*Type material.*—The holotype female is labeled “Hiraizumi [Iwate-ken, Honshu] Aug 25 1962/Japonia tohoku Prov. I. Miyagi/Discocerina-type (Polytrichophora) pollinosa I. Miyagi [except for “-type” the data on this label are handwritten; red].” The holotype is double mounted (minute nadel in cardboard rectangle), is in good condition, and is in the collection of I. Miyagi (University of the Ryukyus, Okinawa, Japan). In the original publication, this specimen is stated to be a male, but it is a female.

*Distribution.*—Palearctic. Japan: Honshu: Iwate-ken (Hiraizumi); Aomori-ken (Towada). Hokkaido: Horonobe; Barato.

*Remarks.*—This species is distinguished from Asian congeners by the following characters: fore femur with flexor row of from six to seven stout setulae along posteroventral margin; male genitalia as illustrated (Figs. 21–25) and described above.

We found that separation of this species from *P. canora* is virtually impossible on external characters alone. The characters of the male genitalia, however, are very distinctive and can be used to distinguish these species.

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